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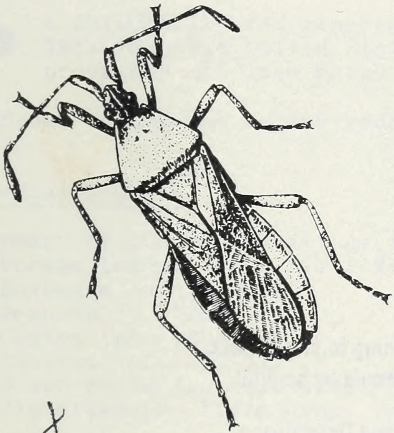

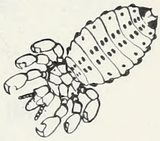

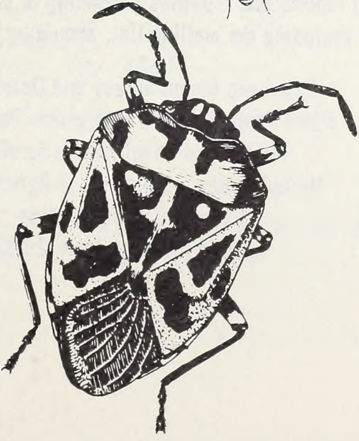

ANIMAL AND PLANT HEALTH SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

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Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Service
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Volume 22 March 10, 1972 Number 10

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMY CUTWORM larvae appearing in grassland areas in Nebraska. (p. 107).

GREENBUG light in most States. In Oklahoma, some counts heavy but damage light. (p. 107).

ALFALFA WEEVIL eggs and larvae heavy in portions of Oklahoma. Larvae appearing in Arkansas, Missouri, Illinois, and Virginia. (pp. 107-108).

GREEN PEACH APHID appearing on peaches and PEAR PSYLLA males and females observed in Washington. (p. 108).

CITRUS RED MITE continues to buildup in lemon groves in Arizona. (p. 108).

Detection

● A PHYTOSEIID MITE reported from Florida for first time. This is a new United States record. These mites usually predatory on other mites and small arthropods. (p. 108).

For new county and island records see page 111.

Special Reports

Summary of Insect Conditions in the United States - 1971
  Forage Legumes (pp. 112-118).
  Soybeans (pp. 118-120).
  Peanuts (p. 120).
  Cotton (pp. 120-122).
  Tobacco (pp. 122-123).
  Sugar Beets (pp. 123-124).
  Miscellaneous Field Crops (p. 124).

General Distribution of Alfalfa Weevil. Map. (p. 113).

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WEATHER OF THE WEEK ENDING MARCH 6

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Rains continued in the Pacific Northwest. Showers occurred in the intermountain region and eastward to the northern Rocky Mountains, with snow in higher elevations early in the week. Scattered snow flurries occurred over the northern Great Plains, moderate snow fell in the upper Mississippi River Valley, the Great Lakes region and the Northeast. Rain fell along the New England coast. Sunny, pleasant weather prevailed over much of the south. Late Tuesday, moderate showers soaked much of the gulf coast. A storm over the central Great Plains intensified about midweek, dumping several inches of snow across the northern Great Plains and Great Lakes region. A front stretched from the central Great Plains to New England early Tuesday. Thunderstorms occurred in the Ohio River Valley in the warm air south of the front. In some localities thunderstorms produced hail. The western portion of the front pushed southward. A few tornadoes were seen. One tornado wiped out a trailer park in Ozark, Alabama. Flash floods occurred along some streams in western New York, western Pennsylvania, extreme southeastern Ohio, West Virginia, and the eastern portion of Kentucky and Tennessee. Throughout the week, miserable mixtures of snow, sleet, freezing rain, fell along a band separating snow areas from rain areas. These mixtures slicked highways byways and made automobile travel dangerous. Moderate to heavy snow combined with strong winds occurred over upper Great Lakes Saturday. Rain and snow fell in the Middle Atlantic States Sunday. Snow fell in the Northeast. The southwestern quarter of the Nation continued dry last week. Much of this area has been dry since late December. Weather of the week continued on page 110.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - NEBRASKA - Increased in Dundy County alfalfa. Some activity also noted in grassland areas, ranged up to one-half inch in length. (Campbell). OKLAHOMA - Generally under two per linear foot in scattered wheatfields in Kiowa, Tillman, Jackson, and Harmon Counties. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - ARIZONA - Few found; no buildup observed in small grains in Maricopa and Cochise Counties. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 2-5 per linear foot of barley at Roswell, Chaves County. (Mathews). OKLAHOMA - Ranged 700-2,000 per linear foot in scattered wheatfields in Cotton and Jefferson Counties. Ranged 100-300 per linear foot in scattered fields in Tillman, Jackson, Harmon, and Greer Counties. Most ranged 25-70 per linear foot and few 2-17 per linear foot. Damage light, even in fields with heavier counts. Ranged 2-32 per linear foot in 5 fields in Kiowa County. Ranged up to 10 per linear foot in Payne County. (Okla. Coop. Sur.). ARKANSAS - Light in fescue in Washington County. (Tugwell).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Counts per 100 sweeps of alfalfa, February 18-29, in Maricopa County: winged 560 and wingless 800. (Ariz. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - COLORADO - Trace in corn near Prospect and Roggen area of Weld County. (Marquardt). MARYLAND - No pupation to date on Eastern Shore. (U. Md., Ent. Dept.).

SMALL GRAINS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Light and scattered in wheat in southwest area. Heaviest count 5 per linear foot in 2 Tillman County fields. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light in scattered wheatfields in Kiowa and Tillman Counties. (Okla. Coop. Sur.).

CUTWORMS - COLORADO - Unspecified larvae ranged 2-11 per linear foot on winter wheat in southern Weld County. (Marquardt).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Larvae ranged 1-7 per terminal in 88 percent of terminals in Tillman County alfalfa field. Ranged 1-2 per terminal in 32 percent of terminals in Jackson County and 1-2 per terminal in 20 percent of terminals in Kiowa County. Heavy in Bryan, Jefferson, and Cotton Counties. Light to moderate in Murray, Garvin, and Pontotoc Counties. Infested 25 percent of terminals in Tulsa County, with mating adults common. Samples collected in Chickasha area, Grady County, on February 25, averaged 1,011 eggs and 60 larvae per square foot. (Okla. Coop. Sur.). ARKANSAS - Larvae appearing in Washington County. (Miner). MISSOURI - Hatch observed in 3 fields in southwest area on February 28 and 29. Early instar larvae 1 per terminal on new growth. (Munson). ILLINOIS - Egg hatch early and unusual in Johnson County. Tip feeding noted on 40 percent of stems and counts of 100 first or second instar larvae per 100 stems. County average 15.0 percent tip feeding and larvae 11.6 per 100 stems. (Ill. Ins. Sur.). KENTUCKY - Eggs averaged 105 per square foot in Fayette County. Eggs averaged 19 per square foot at one location in Shelby County and 51 per square foot at one location in Spencer County. (Barnett). VIRGINIA - Eggs hatched at Charlotte County site March 1; larvae ranged 5-7 per tip. Hatch about 3 weeks earlier than usual. (Allen).

CLOVER LEAF WEEVIL (Hypera punctata) - MISSOURI - Larvae 2-9 per square foot in Newton, Lawrence, and Christian Counties. (Munson). ILLINOIS - Larvae light in alfalfa in Johnson County; less than 1 per square foot. (Ill. Ins. Sur.).

PEA APHID (Acyrthosiphon pisum) - OKLAHOMA - Ranged 70-100 per square foot in 8 alfalfa fields in Tillman, Jackson, and Kiowa Counties. (Okla. Coop. Sur.).

SUGAR BEETS

AN ARMORED SCALE (Hemiberlesia lataniae) - CALIFORNIA - Immatures and adults 500 per stem at Bonita, San Diego County. This is a new host. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - First eggs hatched on peaches at Buena Heights, Yakima County February 21. (Johnson).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Males and females noted in flight February 15 collected in yellow pan traps February 27 at Yakima, Yakima County. (Landis). First eggs observed at Buena Heights, Yakima County and at Kiona, Benton County February 23 on bartlett pears, heavy carryover of overwintered adults, but heavy mortality of mature nymphs due to subzero temperature. (Johnson).

CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Buildup continues on lemons on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

AN ARMORED SCALE (Unaspis citri) - UTAH - Heavy on most trees in Temple orange scion grove at Vero Beach, Indian River County. (Kendrick).

BARNACLE SCALE (Ceroplastes cirripediformis) - CALIFORNIA - Adults 20 per leaf on citrus trees at Fresno, Fresno County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - No buildup in citrus groves surveyed on west side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

ORNAMENTALS

A PHYTOSEIID MITE (Ricoseius lococheles) - FLORIDA - Nymphs and adults collected on seagrape, Coccoloba unifera, at nursery in Miami, Dade County, January 18, 1972, by F.J. McHenry. Determined by H.A. Denmark. This is a new United States Record. Previous records from Brasil and Puerto Rico. (Fla. Coop. Sur.).

AN ADELGID (*Adelges tsugae*) - VIRGINIA - Adults and eggs taken from hemlock in Northumberland County for a new county record. Determined by J.A. Weidhass. (Allen).

BAGWORM (*Thyridopteryx ephemeraeformis*) - ALABAMA - Eggs overwintering in bags on shrubs in 3 sites in Lee County in excellent condition. Surveys show 99 to 100 percent survival. (McQueen).

FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - ARKANSAS - Pine twigs examined for overwintering forms indicate moth emergence will be sufficient for heavy first generation in southern areas. (Warren).

EUROPEAN ELM SCALE (*Gossyparia spuria*) - ARIZONA - Crawler stage noted on elm trees at Prescott, Yavapai County. (Ariz. Coop. Sur.).

SPRING CANKERWORM (*Paleacrita vernata*) - INDIANA - Moths observed in wooded areas in Owen, Putnam, and Montgomery Counties. (Lawson).

MAN AND ANIMALS

COMMON CATTLE GRUB (*Hypoderma lineatum*) - COLORADO - Grubs in cattle first week of February averaged 5 per head on untreated cows, 8 per head on untreated calves, and 6 per head on untreated yearlings in Weld County. (Hantsbarger). NEBRASKA - Infested 77 percent of yearlings in 3 herds in Cherry County; averaged 15 grubs per animal. (Campbell). OKLAHOMA - Still moderate to heavy on cattle in Wagoner County. Moderate in Pontotoc County and light in Cotton County. (Okla. Coop. Sur.). KENTUCKY - Larvae averaged 40.1 on backs of untreated Charolais yearlings and 12.0 on untreated Charolais cattle in Fayette County. (Herald). Larvae averaged 4.5 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). FLORIDA - Infested 20 percent of check herd of dairy cows; averaged 8 grubs per animal at Gainesville, Alachua County. (Butler, Head).

CATTLE LICE (*Haematopinus* spp.) - FLORIDA - *H. quadripertusus* (cattle tail louse) adults averaged 2.5 (maximum 10) per tail on untreated dairy cows at Gainesville, Alachua County. Infested 90 percent of check herd. (Butler, Head). OKLAHOMA - Mainly *Haematopinus eurysternus* (shortnosed cattle louse) heavy on cattle in McCurtain, Atoka, and Cotton Counties, moderate to heavy in Pontotoc and Wagoner Counties, and light in Cleveland County. (Okla. Coop. Sur.).

HOG LOUSE (*Haematopinus suis*) - OKLAHOMA - Heavy on hogs in McCurtain County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (*Reticulitermes* spp.) - MARYLAND - First *R. flavipes* (eastern subterranean termite) swarms of season at Beltsville, Prince Georges County. Peak activity expected in 3-4 weeks. (U. Md., Ent. Dept.). DELAWARE - First *Reticulitermes* spp. swarm reported in New Castle County. (Burbutis). NEVADA - *R. tibialis* alates moderate at Las Vegas, Clark County. (Hoff, Zoller).

BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Collected at Sioux City, Woodbury County, on February 24. This is a new county record. (Iowa Ins. Sur.).

BENEFICIAL INSECTS

A BRACONID (Lysiphlebus testaceipes) - OKLAHOMA - Light in Schizaphis graminum (greenbug) infested wheat in Tillman, Jackson, Harmon, and Greer Counties. (Okla. Coop. Sur.).

HONEYBEE (Apis mellifera) - ARKANSAS - Overwintered successfully in northwest areas, and by February 29, first brood cycle completed. Pollen now available on maple and elm in northwest areas. (Warren).

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Adults in most wheatfields in Kiowa, Tillman, Jackson, Harmon, and Greer Counties. Averaged less than 1 per linear foot. Larvae and egg masses light in Harmon and Greer Counties. (Okla. Coop. Sur.).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Found in most southwest area wheatfields. Averaged less than 1 per linear foot. (Okla. Coop. Sur.).

Weather of the week continued from page 106.

TEMPERATURE: Mild springlike weather prevailed over the southern two-thirds of the Nation early in the week. The central Great Plains were unseasonally warm. Most of Nebraska warmed to the 70's on Monday, and temperatures in the 80's were common from Kansas to Texas Monday and Tuesday. Hill City, Kansas, registered 86 degrees Tuesday afternoon. Migratory waterfowl were seen flying north along Continental Flyways. Warm humid weather extended from the central and southern Great Plains to the middle and southern Atlantic coast. Arctic air poured into the northern Great Plains and advanced southward. By noon Wednesday, Arctic air covered Nebraska, Iowa, and was marching into Kansas and Missouri. Balmy weather continued along the Gulf of Mexico, Atlantic coast, and in Florida. Baltimore, Maryland, warmed to 80 degrees Wednesday afternoon. Zero line pushed into Iowa, Thursday morning. Devils Lake, North Dakota, registered 28 degrees below zero Thursday. Subfreezing weather covered western Kentucky, 20 degrees was recorded at Bowling Green. Leading edge of the cold air mass continued southeastward, and by Monday morning, March 6, had reached the Atlantic coast. Jacksonville, Florida, registered 33 degrees Monday morning. Cold weather came to the east too late to offset unusually mild temperatures that occurred earlier in the week. Temperatures along the middle Atlantic coast averaged 9 to 12 degrees above normal. The Great Basin and southern Rocky Mountains averaged 6 to 12 degrees warmer than normal. In contrast, large areas across the north from Continental Divide to the Upper Mississippi River averaged 10 to 20 degrees colder than normal.

HAWAII INSECT REPORT

General Vegetables - LEAFMINER FLIES (*Liriomyza* spp.) trace to light in most snap bean and tomato plantings at Kula, Maui; light to moderate in 6 acres of tomato at Kihei. GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) trace on same crops and locations. WATERLILY APHID (*Rhopalosiphum nymphaeae*) heavy; as many as 200 nymphs and adults per leaf in acre of taro at Wailua, Maui. Larvae and adults of a lady beetle, *Coelophora inaequalis*, moderate to heavy amid infestations. (Miyahira). TOMATO PINWORM (*Keiferia lycopersicella*) larvae light in fruit in 6 acres of tomato at Kihei, Maui. About 3 percent of fruits affected; trace on terminal leaves. Sporadic infestations; ranged trace to moderate in most tomato and eggplant plantings at Kula, Maui. (Kawamura).

Fruits and Nuts - Adult of LARGE MANGO TIP BORER (*Bombotelia jocosatrix*) collected in carton of plant cuttings for export at Hilo, Hawaii. This is a new island record; previously reported from Oahu, Kauai, and Maui. (Yoshioka). Larvae of a SWALLOWTAIL BUTTERFLY (*Papilio xuthus*) on citrus and adult sightings increased throughout most of Oahu past 14 days. *P. xuthus* eggs collected from citrus at Aina Haina parasitized. (Kahale).

Beneficial Insects - Parasitism by MELASTOMA BORER (*Selca brunella*) of Indian rhododendron (*Melastoma malabathricum*) fruits and terminals on Hawaii during January averaged 21 percent on flowers and fruits; 29 percent on terminals. (Yoshioka). Adults of SOUTH AFRICAN EMEX WEEVIL (*Apion antiquum*) moderate on roadside emex seedlings at Omaopio, Maui; larvae moderate in stems of older emex in fallow farmlands at same area. (Miyahira). LANTANA HISPID (*Uroplata girardi*) mines moderate on older leaves in 3 acres of lantana in pasture at Waihee, Maui. Light in same host situation at Ulupalakua. (Miyahira).

DETECTION

New United States Record - A PHYTOSEIID MITE (*Ricoseius lococheles*) - FLORIDA - Dade County. (p. 108).

New County and Island Records - AN ADELGID (*Adelges tsugae*) - VIRGINIA - Northumberland (p. 109). BROWN SPIDER BEETLE (*Ptinus clavipes*) IOWA - Woodbury (p. 110). LARGE MANGO TIP BORER (*Bombotelia jocosatrix*) HAWAII - Hawaii (p. 111).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 2/25-3/2, BL, Granulate Cutworm (*Feltia subterranea*) 9, armyworm (*Pseudaletia unipuncta*) 2. MISSISSIPPI - Stoneville, 2/25-3/2, 2BL, temp. 37-78 F., precip. 1.52, Armyworm 38, granulate cutworm 10, black cutworm (*Agrotis ipsilon*) 9. TEXAS - Waco, 2/25-3/2, BL, Armyworm 30, yellowstriped armyworm (*Spodoptera ornithogalli*) 39, variegated cutworm (*Peridroma saucia*) 34, granulate cutworm 53.

CORRECTIONS

CEIR 22(9):80 - SOUTHERN FIRE ANT (Solenopsis xyloni) - OKLAHOMA - ... (Okla. Coop. Sur.). should read SOUTHERN FIRE ANT (Solenopsis xyloni) - *CALIFORNIA* - ... *(Cal. Coop. Rpt.)*. (PP).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1971

(Continued from page 99)

FORAGE LEGUMES

Highlights:

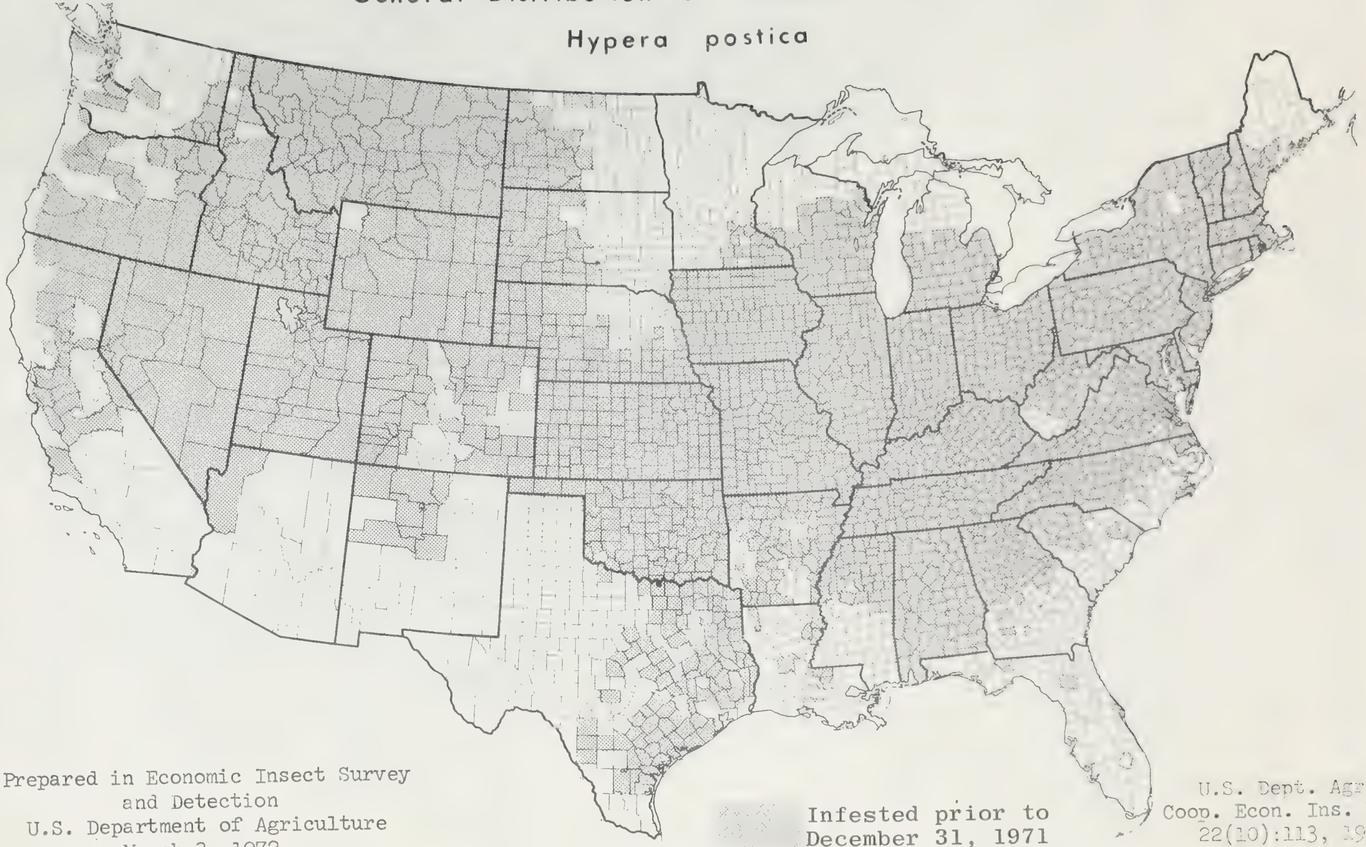
ALFALFA WEEVIL populations were heavy in several Western States. A parasitic wasp was noted in alfalfa fields in Oregon, but no significant control was observed. Alfalfa weevil continued to spread in Texas, Oklahoma, Missouri, Kansas, and Nebraska. Distribution statewide in Oklahoma and Missouri, and all but one county infested in Kansas. Economic populations were reported in several Northeastern States. Populations declined in Pennsylvania. In Kentucky, was the major pest of alfalfa. Heavy populations were observed in Virginia.

ALFALFA WEEVIL (*Hypera postica*) larvae were first found in eastern OREGON in mid-May. Early instar larvae averaged 10 per sweep in Crook and Klamath Counties. In Harney County, heavier than normal damage was reported. Although *Bathyplectes curculionis* (an ichneumon wasp) was found in all alfalfa areas surveyed, it did not seem to exercise any significant control. Larvae and adults in IDAHO ranged 3-5 per sweep of alfalfa in Canyon and Payette Counties. Controls were needed or had been applied to 60 percent of the alfalfa in parts of Owyhee County by May 19. Numerous fields were severely damaged in Ada and Canyon Counties by larvae June 23 and 24. Less than 30 percent of this acreage was treated. Alfalfa in early bud stage on May 27 showed 1-percent tip damage in Twin Falls County. By June 21, this area showed greater feeding damage than in 1970. First and second instar larvae damaged 15-40 percent of the terminals, while adults ranged 6-30 per 10 sweeps on June 22 in Camas County. Populations were heavier in MONTANA than in any previous year in Richland, Blaine, and Fallon Counties; damage was heavy. Elsewhere, populations declined, especially in Gallatin County.

In NEVADA, oviposition began in early April, however, most eggs were laid in May. Adverse weather retarded weevil and alfalfa development until after mid-May. Larvae peaked at 150+ per sweep and damage was heavy, due partly to weather conditions. Chemical controls began in mid-May and continued until mid-June in most central and northern areas. Alfalfa seed fields in Humboldt County were damaged due to a change of insecticides. Subsequent control measures were hampered by adverse weather and by the introduction and emergence of pollinators. Damage ranged from light to very heavy in UTAH. Stubble spraying reduced damage to the second crop of alfalfa on previously unsprayed acreage, but heavy damage did occur in Washington, Grand, Piute, Wayne, Sanpete, and Millard Counties.

Alfalfa weevil mated and laid eggs on alfalfa the first week of April in COLORADO. Generally active the first week of May, damaging levels were present by the last of May in Weld and Pueblo Counties. There was considerable loss to the first cutting and some loss on the second cutting. Losses in 1971 were estimated at $1,250,000. In NEW MEXICO, larval damage was heavy on the second and third cuttings of alfalfa in Bernalillo and Sandoval Counties. Infestations were less severe in San Juan and Rio Arriba Counties this year.

General Distribution of Alfalfa Weevil
Hypera postica



▨ Infested prior to December 31, 1971

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Alfalfa weevil infestations were heavy throughout the eastern half of TEXAS during 1971. Populations were moderate to heavy in Ellis, Robertson, Falls, and Brazos Counties as early as January 15. Damage was severe in the last 3 counties; larvae averaged 175 per 20 sweeps. Light to heavy populations were reported throughout most of south-central Texas until mid-March. Alfalfa weevil larvae were found in southern OKLAHOMA the first week of March, and adults began to appear by mid-March. Heavy infestations in the southeastern area damaged the first and second crops of alfalfa during March, April, and May. Populations declined in the extreme southern area by mid-April, but continued heavy in the northeastern area until early June. Adults were collected from alfalfa and white and yellow sweetclover in 52 new counties. Distribution is now statewide. Adults and larvae were light to moderate in scattered areas in October and November.

Economic infestations of alfalfa weevil were found in a few KANSAS fields in Hamilton, Labette, Crawford, and Elk Counties. Found in Crawford County, the heaviest infestation had an average of 2 larvae per terminal and extensive foliar damage. Alfalfa weevil now occurs in every county except Phillips. Peak larval populations in NEBRASKA occurred 7-10 days later than in 1970. The heaviest counts were 1,620 larvae and 65 adults per 100 sweeps of alfalfa in Dawson County. Larval counts started to decline by June 22. Damage was heavy to regrowth alfalfa after the first cutting in Lincoln County. Problems are expected in central Nebraska if the trend continues in 1972. Active in irrigated alfalfa in McKenzie County, NORTH DAKOTA, by the end of May, adults ranged up to 80 (averaged 40) per 100 sweeps. By mid-June, larval counts were 200 per 100 sweeps. Damage was up to 5 percent. Larval counts in Oliver County averaged 40 per 100 sweeps. Larvae were collected in Burleigh County for a new county record. Seed producers reported that controls were not satisfactory.

Alfalfa weevil adults appeared in MINNESOTA the week of May 10 in Houston County. During June a total of 15 new counties were found infested. Counts were light, ranging from trace to 2 per 300 sweeps. No economic problems developed.

Overwintered alfalfa weevil eggs in MISSOURI ranged from 4 per square foot in the northeastern area to 395 in the east-central area during February. Egg counts throughout the southern area indicated that larval populations would be heavy. Hatch started late February in the southeastern and south-central areas. By March 20, larval populations were economic in the southeastern area. Economic damage and heavy larval populations were noted throughout the southern area by mid-April. Larvae ranged 35-1,650 per 10 sweeps in the central and northeastern areas by May 1. Pupation was observed in the southern area the last week of April. Adults in southern area ranged 5-100+ per 10 sweeps and damage to second-cutting alfalfa was reported throughout this area. Alfalfa weevil is now distributed statewide.

Alfalfa weevil infestations in ARKANSAS were the heaviest ever. A mild winter resulted in adults appearing earlier than usual and larvae becoming active in January in extreme southwestern Arkansas. Adults appeared in March in the central area and in early April in the extreme northwestern area. Egg survival was apparently high this year. Hatch of winter as well as spring eggs resulted in a long period of larval activity with counts up to 1,500 per 100 sweeps. Generally requiring one treatment, some research plots required 3 treatments. Infestations declined in late May. The principal host noted in the 16 new counties in Arkansas was crimson clover.

Alfalfa weevil damage on alfalfa was first observed during the week of March 29 in southwestern ILLINOIS. By the week of April 12, larval populations had increased to as high as 370 per 100 sweeps in Pulaski County and 265 in Gallatin County. Larvae peaked at 4,800 per 100 sweeps in the southwest district and 5,400 in the southeast district. By May 7, economically damaging populations of 2,000 per 100 sweeps could be found throughout the southern half of the State. Larval parasitism by Bathyplectes curculionis (an ichneumon wasp), averaging 5.4 percent April 20-21, increased to 39.9 percent May 9-12 in the southern half of Illinois. Chemical controls were applied to more than 71,200 acres. In INDIANA, feeding was seldom seen north of U.S. Highway 40, and controls were seldom needed north of U.S. Highway 50.

First instar larvae and mating alfalfa weevils in southern WISCONSIN started the first week of May, indicated a prolonged period of hatching. Severe damage was noted in a Rock County field on May 26. Pupation was underway by May 28. Early in June several fields with 25 percent or more injured tips needed controls in sandy areas near the Wisconsin River. Up to 47 per sweep were noted during peak larval activity. Emergence of new adults began in Dane County by June 18. Gradually declining until late in October, adult and larval counts rapidly increased to 25 per sweep in lush alfalfa. Alfalfa weevil damage and control in MICHIGAN was erratic because of the dry weather. Where rains were sufficient a timely first cutting avoided damage. Where rains were unusually light, the delayed first cutting suffered some severe damage. In OHIO, larvae appeared on May 14. Populations were damaging in Washington, Brown, and Pickaway Counties. Egg laying stopped on June 25.

Alfalfa weevil infestations in ALABAMA were heavy on the declining alfalfa acreage. All of the 4,000 alfalfa acres received controls. Damage was noted on white clover, vetches, and other legumes. In TENNESSEE, first instar larvae appeared by mid-March in Haywood, Madison, and Tipton Counties. Although statewide by March 26, first and second instar larvae had caused very little damage. By mid-April, temperatures became high enough to allow needed controls to be applied in many areas. Control for adults continued until after the first cutting when daily temperatures repressed weevil activity.

Alfalfa weevil was the major pest of alfalfa in KENTUCKY. Egg counts for January 18 through April 15 ranged from 192 eggs per square foot to 274 on February 24 for 3 fields in Fayette County. Some first instar larvae were noted on January 15. In mid-May, larval counts peaked at 277 larvae per sweep, 4.5 times higher than in the previous 2 years. At this time, losses in untreated fields ranged 50-80 (averaged 60) percent statewide. The heaviest infestations were in the northern and northwestern areas. Treatment was required in almost every alfalfa field after growth was 8-12 inches long. One treatment was usually adequate.

Alfalfa weevil populations in VIRGINIA were heavier than in 1970. First instar larvae were reported in Charlotte County on March 24. In this area, the southern Piedmont, 80-100 percent of the alfalfa stems were infested by April 20. By April 27, pupation had begun in Charlotte County. In the northern Piedmont, 60-100 percent of the stems were being damaged by May 12. Populations ranged up to 1,600 larvae per 100 sweeps by May 26, but excellent growing conditions allowed many fields to withstand the heavier population. Larvae had pupated by June 8 in the northern Piedmont of Virginia. The light to moderate populations in MARYLAND, in Frederick, Washington, and Allegany Counties, were above the past 2 years' record low populations. Counts elsewhere were light. Larvae were first active April 5. First and second instar larvae predominated in Carroll, Frederick, and Howard Counties during the week ending May 7. Late May and early June infestations in northern Frederick and Washington Counties required stubble sprays on about 1,200 acres. Pupation peaked June 4-12 on the Eastern Shore and June 12-22 in the central and western counties of Maryland.

In DELAWARE, larvae appeared on alfalfa during late March, only light feeding injury occurred during most of the growing season. The highest larval count was 8 per 100 sweeps during late April and late May. The alfalfa weevil population has continued to decline in most of PENNSYLVANIA. Practically all central and southern localities had lower peak larval populations in 1971 than in 1970. The lowest populations were noted in the southeastern counties where a mean of 10 larvae per sweep was collected during peak activity. The exception to this downward trend was in the southwestern area where populations continued to increase. The mean peak larval populations for this area were 100+ per sweep; as many as 500 per sweep were collected in some fields. Extensive surveys in MASSACHUSETTS were made in Berkshire County. On May 22, 10 adults and 35 larvae were collected in 100 sweeps. Adult numbers remained the same during the next 4 weeks, but larvae increased to a high of 1,207 on June 14, declining to 896 per 100 sweeps on June 22. On June 30, after the first cutting, numbers were very low and remained low for the rest of the season.

CLOVER LEAF WEEVIL (Hypera punctata) was a serious pest to seed production of crimson clover in central ALABAMA; a total of 1,500 acres received 1-2 applications of insecticides. First larvae were reported in Montgomery and Macon Counties in early April. Populations were higher in southeastern MINNESOTA. In early June, larval counts of 1-20 per square foot were found in Goodhue County alfalfa and red clover fields. Feeding damage was moderate in the heavily infested fields.

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) larvae and adults were heavy on alfalfa in ARIZONA from early January through mid-April on the Yuma Mesa in Yuma County. Several fields were treated at Yuma. In Maricopa County, counts were heavy in many fields in late February.

BEET ARMYWORM (Spodoptera exigua) infested alfalfa in ARIZONA from mid-February through late November in Yuma County. Larval counts of 1,320 per 100 sweeps were taken at North Gila Valley in mid-September. Smaller peaks occurred during late February, early May, mid-July through September, and early November.

PEA APHID (Acyrthosiphon pisum) populations on seed alfalfa required the usual treatments in NEVADA in June. Treatments continued through August in Churchill, Humboldt, Lander, and Pershing Counties. Economic populations were on alfalfa for hay in southern Nye County in April and in Lyon County in May. Controls were needed in these counties. Spring and fall injury in UTAH occurred in parts of Uintah, Wayne, Duchesne, Beaver, Millard, Grand, San Juan, and Juab Counties, plus local infestations elsewhere. Several control programs were necessary. Moderate to heavy infestations on alfalfa in scattered areas of OKLAHOMA from late March to mid-May did not develop into general, widespread infestations. Numbers were declining in all areas by early June. Averaging 200 per 100 sweeps on irrigated alfalfa in McKenzie County, NORTH DAKOTA, by May 28, populations increased to 1,200 per 100 sweeps by June 11. First cutting was underway at this time. On dryland alfalfa in Burleigh and Emmons Counties, counts averaged 300 per 100 sweeps. Populations were up to 5,000 per 100 sweeps by July 9 on second-crop alfalfa in Cass County, and had increased to 20,000 per 100 sweeps by July 30 on Burleigh County alfalfa. In VIRGINIA pea aphid appeared on alfalfa on April 14 in Charlotte County; by April 20, 5-6 per 100 sweeps were present in Orange, Page, Frederick, and Fauquier Counties. On May 19, counts of 800 per 100 sweeps of red clover were noted. Populations were spotty statewide and generally of little economic concern.

Surveys for a LEAF BLOTCH MINER FLY (Agromyza sp.) in MASSACHUSETTS were made in Hampshire, Essex, and Berkshire Counties. Although 810 adults were taken in 100 sweeps in Hampshire County on May 19, and 1,310 adults were swept in Berkshire County on May 27, larval mines were very few. By mid-June, over 50 percent of the leaflets were infested in Berkshire County, and about 20 percent in Hampshire County. After the first cutting, near the end of June, the infestation levels remained light to moderate, less than 10 percent for the rest of the season. In Essex County, leaflets infested were less than 10 percent in June but over 30 percent in July.

GUAR MIDGE (Cecidomyia texana) damage was noted in several Rolling Plains counties in TEXAS. The heaviest damage to guar occurred along the Red River in Hardeman County.

LYGUS BUGS (Lygus spp.) populations on seed alfalfa were normal in most of NEVADA and required treatments from June through August in Churchill, Humboldt, Lander, and Pershing Counties. In Churchill County and 2 areas of Pershing County, counts of 8-35 nymphs and 9-20 adults per sweep remained after treatments.

GRASSHOPPERS (Melanoplus spp.) infested most alfalfa and clover fields throughout ILLINOIS. Damage appeared to be heaviest in fields where repeated mowing of nearby roadside grasses forced populations to migrate into the fields. About 71,300 acres of clover and alfalfa were treated in 1971. In MINNESOTA, hatch of MIGRATORY GRASSHOPPER (Melanoplus sanguinipes) and PACKARD GRASSHOPPER (M. packardii) started in early May. The predominant species, REDLEGGED GRASSHOPPER (M. femurrubrum), did not begin hatch until the second week in June. Damage to forage crops, primarily alfalfa, was spotty and moderate. Populations in 1971 decreased; 252,000 acres of forage crops had economic populations. An egg survey, confined to fields that had economic populations during the adult survey, showed that 56 percent had eggs present. Moderate to very abundant infestations lie in small areas of east-central, central, west-central, south-central, and southeastern Minnesota. Infestations in 1972 are expected to be dispersed throughout these areas.

PACIFIC SPIDER MITE (Tetranychus pacificus) populations in NEVADA began to increase on seed alfalfa in Humboldt County in June and became economic in July and August, when 1,800 acres were treated.

LESPEDEZA CYST NEMATODE (Heterodera lespedezae) cysts were collected from Haywood County, TENNESSEE, on January 8, 1971, for a new State record.

SOYBEANS

Highlights:

MEXICAN BEAN BEETLE appeared in numbers large enough to warrant control in Indiana, North Carolina, Virginia, and Maryland.

MEXICAN BEAN BEETLE (Epilachna varivestis) adults appeared earlier on soybeans and over a larger area of INDIANA in 1971 than in past years. By June 11, infested fields were seen in Jennings, Clark, Scott, Jefferson, and Ripley Counties in the southeast district (usually most heavily infested district) and in Harrison County (usually normally infested) and Jackson County (usually less frequently infested) in the south-central district. In June, adults ranged 0-3 per 10 feet of row with some feeding damage on nearly every plant in some fields. Mid-July numbers warranted controls in Dearborn, Jefferson, and Ripley Counties, and in 2 counties in the central district. This insect generated more inquiries than any other crop pest, partly because its depredations extended into areas where it had not previously been a problem, and partly because its attacks were locally severe.

Mexican bean beetle population in SOUTH CAROLINA was lower than normal and damage was very light. Significant damage to soybeans did not occur until October when 35 acres in Orangeburg County had 50 percent defoliation and 15 acres in Dillon County had 90 percent or more defoliation in 3 fields. In NORTH CAROLINA the buildup began on young soybeans in the central Coastal Plain in early June. Damage occurred in isolated fields over the entire Coastal Plain, but damage was more pronounced in the northeastern counties where 70+ percent defoliation occurred in some fields. Some northeastern fields received 3 spray treatments.

Mexican bean beetle was not much of a problem on soybeans on the Eastern Shore of VIRGINIA until tender foliage appeared following the late August rains. Probably 75 percent of the acreage on the Eastern Shore was treated. Mexican bean beetle adults emerged before July 28 at Holland, Nansemond County, and in other nearby counties. Egg hatch in Richmond County began as early as August 5. The first economic damage was detected August 21 in Nansemond County. Economic infestations were occurring in Surry and Middlesex Counties by September 9, and within 7 days many fields south of the Rappahannock River and east of the City of Richmond had to be treated. The rapid buildup in the Tidewater area continued until October 7 when beans were too mature to suffer much damage.

Mexican bean beetle damage in MARYLAND increased over 1970's moderate levels in Dorchester, Wicomico, Worcester, and Somerset Counties. Heavy defoliation began in late August and continued into October. About 60 percent of the 90,000 acres in these lower Eastern Shore counties were 30-90 percent defoliated by September 24. Because overwintering populations in this area were heavy, growers should expect heavy populations and damage early in 1972. About 20,000 acres were sprayed this season.

Feeding injury was heavy in Sussex County, DELAWARE, during late September.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) infestations were moderate to heavy in nearly all MISSISSIPPI counties except in the delta. Bean pod mottle disease was directly related to heavy infestations of this beetle. In Lee, Lowndes, Monroe, and Noxubee Counties, the disease infected from 0.4 to 95 percent of the plants inspected.

GRAPE COLASPIS (*Colaspis brunnea*) damaged, and in some cases killed, soybeans in Weakley and Decatur Counties, TENNESSEE. Damage was also observed in Madison and Henry Counties.

Adults of a CERAMBYCID BEETLE (*Dectes texanus texanus*) were collected from cockleburs in soybean fields in the following TENNESSEE counties: Madison, Haywood, Tipton, Crockett, Henry, Hardeman, McNairy, Chester, Henderson, Hardin, Decatur, Carroll, Gibson, Lake, Obion, Weakley, and Benton for new records. Although no adults were collected in soybean fields without cocklebur plants, the potential for economic damage to soybeans is indicated by the large number of adults found in some fields.

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) infestations were heavy in most soybean fields throughout Allendale County, SOUTH CAROLINA, on August 20. In Marion County, 3-4 larvae per linear yard caused 5 percent or more foliage loss to several fields in late August. Some damage occurred in scattered areas of the State in late September.

BLACK CUTWORM (*Agrotis ipsilon*) larvae infested about 2,000 acres of soybeans in central and western IOWA. Replanting was not necessary because loss of stand never reached 50 percent.

GREEN STINK BUG (*Acrosternum hilare*) and SOUTHERN GREEN STINK BUG (*Nezara viridula*) were heavy in the lower part of SOUTH CAROLINA during September. In Chesterfield County, 100 percent of the plants in 500 acres of soybeans were heavily infested on September 28. *A. hilare* adults and nymphs caused little economic damage in 1971 in VIRGINIA. Only Richmond and Dinwiddie Counties had economic infestations.

BANDEDWING WHITEFLY (*Trialeurodes abutilonea*) infestations in MISSISSIPPI appeared to be increasing in early September. In Hinds County, honeydew resulted in sooty mold production. At the same time, there were light to moderate infestations in Bolivar, Coahoma, Noxubee, Sharkey, Tallahatchie, Warren, and Yazoo Counties.

THREECORNERED ALFALFA HOPPER (*Spissistilus festinus*) lodged young soybeans in Noxubee and Oktibbeha Counties in mid-July in MISSISSIPPI. By August and September, heavy populations were found in Bolivar, Clay, Leflore, Monroe, Noxubee, Oktibbeha, and Sunflower Counties. Plants withstood the attack and little lodging resulted.

GRASSHOPPERS (*Melanopus* spp.) were a common problem in marginal rows of soybeans throughout ILLINOIS. Damage could continue in 1972 in counties with threatening populations. The fall survey in 1971 on roadside grass indicated a uniform statewide distribution. District populations ranged from 1.5 grasshoppers per square yard (east) to 4.4 grasshoppers per square yard (central). About 68,000 acres of soybeans were treated in 1971.

TWOSPOTTED SPIDER MITE (*Tetranychus urticae*) damage was widespread and persistant in some areas of ILLINOIS throughout the summer. Fields adjacent to clover were most often hit. About 14,300 acres were treated.

PEANUTS

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) infestations in TEXAS were first detected on volunteer peanuts during late June in Proctor, Comanche, and Erath Counties. Continued to increase on irrigated peanuts in Eastland and Comanche Counties. Infestations ranged to 40 percent in dryland peanuts in central Texas.

TOBACCO THRIPS (*Frankliniella fusca*) and other thrips were the more important pests of peanuts in ALABAMA, and were found in all fields. Growers applied preplant systemic insecticides to about half of the 190,000 acres planted.

Populations of a BURROWING STINK BUG (*Pangaeus bilineatus*) began to increase in late June in Frio and Eastland Counties, TEXAS. Damage to peanuts was much lighter than during 1970.

TWOSPOTTED SPIDER MITE (*Tetranychus urticae*) problems increased throughout the northeastern peanut-growing counties of NORTH CAROLINA, particularly in Northampton County where damage appeared in early August. Spot defoliation occurred during late August in many untreated fields. Peanuts growing near cotton are apparently more likely to have heavy populations. Control measures were essential to prevent loss in half of the Northampton County acreage.

COTTON

Highlights:

BOLLWORMS and BOLL WEEVIL continue to be the major pests of cotton in most cotton-producing States in 1971. BANDEDWING WHITEFLY was a problem on cotton for the first time in Alabama and Tennessee.

BOLLWORM (*Heliothis zea*) larvae appeared in early June in the larger cotton areas of ARIZONA. By mid-July, many fields were being treated in Yuma County. Controls started about mid-August in Pima, Pinal, Maricopa, Yuma, and Cochise Counties. *H. zea* infested cotton from mid-July to early October in OKLAHOMA. Damage was light to moderate during August, and moderate or heavy during September. TOBACCO BUDWORM (*H. virescens*) comprised 11 percent of the bollworm population in early September and 30 percent in early October in Grady County, and 1-2 percent of the population in Tillman County in October. *H. zea* infestations in ARKANSAS were lighter than in 1970. Of 3,473 *Heliothis* spp. larvae determined, *H. virescens* numbered 71.

Heliothis spp. infestations were generally lighter than in 1970 in MISSISSIPPI. Eggs appeared on cotton in early June in De Soto, Jefferson Davis, and Washington Counties. In late July and early August, a moderate outbreak of second-generation larvae occurred throughout the State. Infestations peaked in the last half of August, with more *H. virescens* appearing than *H. zea*. *H. virescens* was troublesome on cotton throughout ALABAMA following a buildup of 2+ generations on clovers and vetch. Infestations were lighter than in 1969 and 1970.

The first *H. zea* eggs were found on cotton during early July in western TENNESSEE. Damage of small squares was below control levels. By mid-July, egg and larval counts ranged 1-9 per 100 terminals. With counts in late July up to 16 per 100 terminals, some fields were above control levels. By early August, many fields were above control levels, and the first bolls were injured. *H. zea* continued a serious threat to cotton during August. Counts as high as 75 larvae or eggs per 100 terminals were observed in some fields. During September, larval damage of late cotton did not require controls.

BOLL WEEVIL (*Anthonomus grandis*) infestations were light in southwestern and south-central OKLAHOMA in early July. Populations were light to moderate in most areas into early August. By late August, heavy counts were common in untreated cotton. Through October, counts increased while the number of squares and control operations decreased. Infestations in ARKANSAS were heavier than in 1970 due to a mild winter and heavy rains in late July and early August.

Boll weevil survival in MISSISSIPPI was much higher than expected due to a mild, dry winter. Infestations were heavier at an earlier date than in 1970. Overwintered weevils began appearing in fields in mid- to late-June in Jefferson Davis, Monroe, Rankin, Tishomingo, and Washington Counties. Because of economic populations, even in many diapause areas in early July, control programs were initiated earlier than in 1970. Late frosts extended diapause programs into late November in Covington, Jefferson Davis, Lawrence, and other southern Mississippi counties.

Overwintered boll weevils were heavier this year in ALABAMA than in 1970. First and second generations increased to damaging numbers early. Controls became general in southern and central areas by late June and July and in the northern areas by late July and August.

Spring counts of overwintered boll weevils in western TENNESSEE averaged 747 weevils per acre, a carryover of 64 percent from the 1,008 that entered hibernation. By early June, overwintered weevils were feeding in terminal buds of cotton in the southern tier of counties. By early July, general infestations were found in the cotton-growing area, and punctured squares were found in all of the older cotton. Punctured square counts ranged 1-32 percent in fields infested the week ending July 9. First-generation weevils were observed July 16 and most had emerged by July 23. Punctured-square counts ranged 1-83 percent and many fields were above the 10-percent control level. By July 30, second-generation weevils were beginning to emerge. Favored by weather, populations increased until mid-August, weevils were migrating from infested southern counties to uninfested northern counties. By late August, some northern counties were reporting punctured-square counts of 60-80 percent. Controls were generally satisfactory.

The overwintered boll weevil population was much heavier than the record low of 1970 in NORTH CAROLINA except for the diapause areas in Northampton and Scotland Counties. About 75 percent of the overwintered weevils caught in Northampton County were from nondiapause control areas. Catches in sexlure traps peaked during the first week of June. Excellent control was accomplished where community insect control programs were implemented.

BANDEDWING WHITEFLY (Trialeurodes abutilonea) infestations increased on ARKANSAS cotton in 1971. Confined to the southwestern area in past years populations were also found this year in nearly all fields in the southeastern area. Populations are appearing farther north in eastern Arkansas each year although populations are lighter. Populations were heavy on cotton in Elmore, Autauga, Montgomery, and Macon Counties of ALABAMA. These were new county records and the first report on cotton in the field. Infestations were heavier than usual in western TENNESSEE. Damage occurred in one field in Fayette County. This is the first report of damage to cotton in the State.

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) infestations were heavy in southeastern OKLAHOMA by mid-June and in scattered south-central and southwestern counties by mid-July. Damage to late cotton in the southwestern and south-central areas continued into early August.

Thrips, mainly TOBACCO THRIPS (Frankliniella fusca) and FLOWER THRIPS (F. tritici), were found throughout ALABAMA especially on 2 to 6-leaf cotton. Control efforts, mostly preplant systemics, were general in northern Alabama and extended south into much of the central area.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) populations in MARYLAND on newly set plants ranged 2-8 per plant during May and June. Good growth conditons, similar to the 1970 season, minimized injury from June to August. Few growers applied controls. In VIRGINIA, overwintered adults were more numerous than in 1970. Adults ranged 4-8 per plant in some fields in Pittsylvania County on May 24. By August 10, fields in Dinwiddie County averaged 5-20 holes per leaf in small plantings, more damage than was generally seen over the tobacco belt. Little economic damage occurred, due to effective spray practice. Young tobacco plants in plant beds were damaged on May 14 in Pulaski County, KENTUCKY, by tobacco flea beetle. Populations were light early in the season and increased gradually. The highest count was 10 adults per plant in plant beds in Pulaski County on June 11. Some areas in Graves County had 10 percent defoliation the last of July. Statewide, damage was light. By the first week of June, light to moderate infestations, 4-10 per plant, were common in all fields surveyed in TENNESSEE. Controls were applied in most cases, but were not always effective. Damage did not occur after the end of June.

ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) was unusually heavy in KENTUCKY. Significant feeding damage by adults was noted on tobacco. Adults ranged 5-10 per plant in Breathitt, Perry, Owsley, and Wolfe Counties and 6-8 in Morgan, Elliott, Carter, and Magoffin Counties.

BLACK CUTWORM (Agrotis ipsilon) larval damage to newly set tobacco in MARYLAND was evident the first week of July. About 600 acres in Charles, Prince Georges, and St. Marys Counties required controls. Damage was heaviest near Huntington, Calvert County, where 25 percent of a 10-acre stand was damaged by third and fourth instar larvae by July 2.

GREEN PEACH APHID (Myzus persicae) appeared on MARYLAND tobacco in early July. Infested plants ranged 4-40 per 50 plants examined in Charles, St. Marys, Prince Georges, and Calvert Counties. Most fields averaged 3-10 percent infestation throughout the season. Damage levels were slightly lower than reported in 1970.

SUGAR BEETS

Highlights:

SUGARBEET ROOT MAGGOT caused noticeable damage in Minnesota.
WEBWORMS required control in North Dakota beets.

SUGARBEET ROOT MAGGOT (Tetanops Myopaeformis) infestations increased during recent years in MINNESOTA. Sugar beets grown in light soils had the most adult flies and eggs in June. Only trace numbers could be found in the heavier soils from northern Wilkin County northward through Kittson County. Two areas, both light soil types, had the heaviest fly counts; an oval area in southwestern Kittson County near Robbins, 4 miles long and 3 miles wide, and an area in Clay County from Glyndon northward to the Norman County line. Fly counts were heavy in both areas in June, with up to 1.4 flies per square foot in Kittson County. Egg counts were also heavy, but few eggs hatched. The reason for the nonviable eggs was not known. Larval counts were light. Only an occasional field in Kittson County had 6-20 percent infestations. In early July an average of 1.2 maggots per beet was found in the Kittson County area. Plants were stunted with roots 2-3 inches long and numerous root hairs.

In NORTH DAKOTA, sugarbeet root maggot was 95 percent pupated and 50 percent emerged in Walsh and Pembina Counties by June 11. Fly emergence peaked during a 5-day period before June 18. Peak counts were lighter than in 1970. By June 25, early eggs appeared to be nonviable and dry. By July 2, newly hatched maggots were feeding on new sugar beets in Walsh, Pembina, Grand Forks, and Traill Counties; in Richland County, plants were stunted and wilted.

Sugarbeet root maggot was the major insect pest of sugar beets in 1971 in Larimer and Weld Counties, COLORADO. Trapped on May 3, adult flies increased on May 8-14. Adults peaked the week of May 15-21. Second-generation adults emerged the later part of May. Populations and damage were much lower in 1971 than in 1970.

BEET WEBWORM (*Loxostege sticticalis*) and ALFALFA WEBWORM (*L. commixtalis*) moth flights in NORTH DAKOTA were heavy June 11-21 at Bismarck, Burleigh County, and June 14-22 at Sentinel Butte, Golden Valley County. Moths, 4 per square yard, and eggs were present in beetfields in McKenzie County on June 11. By June 25, controls were underway on damaged beets in Oliver County. Control measures were undertaken in McKenzie, Oliver, Cass, and Traill Counties. Light trap collections during late July indicated a potentially heavy second generation. However, cool weather during the period apparently limited moth activity. The heavy numbers did not develop.

BEET ARMYWORM (*Spodoptera exigua*) controls were needed in most fields of sugar beet seedlings in ARIZONA. Without controls of some type, from the cotyledon stage up to about four-inch leaf height, profit and yield would not be high.

MISCELLANEOUS FIELD CROPS

Infestations of PYRALID MOTHS were economic in two States. In the Trans-Pecos area of Texas, populations of SUNFLOWER MOTH (*Homoeosoma electellum*) was heavy during July. Some controls were applied in Reeves County, where larvae ranged 2-3 per head in some fields. This same species was also economic in 6 percent of the sunflower fields in Richland, Cass, and Traill Counties, NORTH DAKOTA. By August 13, larvae ranged up to 670 per 100 heads in these areas. At the same time, economic infestations of BANDED SUNFLOWER MOTH (*Phalonia hospes*) was not widespread. On August 20, the fields more heavily infested with this phaloniid moth showed 40 percent of the heads infested with larvae up to 20 per head.

A GALL MIDGE (*Contarinia* sp.) was damaging to sunflowers in NORTH DAKOTA and MINNESOTA. This species has not been described; however, the damage in these States was similar. Larval counts of 300 per head were noted by July 30 in North Dakota. Infestations and damage were heaviest in Traill County; where 89 percent of the sunflower fields were infested. Damage was lighter in Cass, Grand Forks, Steele, Walsh, and Pembina Counties. Pupation had occurred by August 20. In Minnesota, damage occurred in the Red River Valley late July and early August. The heaviest infestations were in southern Norman County. In some fields, infested heads range 70-90 percent. Little or no seed formed where populations were heavy, except for a ring of seed around the edge of the head. Control efforts were unsatisfactory.

Surveys in NORTH DAKOTA revealed SUNFLOWER MAGGOT (*Strauzia longipennis*) infestations in all the sunflower fields in Traill, Ransom, Steele, Walsh, Pembina, and Grand Forks Counties by August 13. Up to 100 percent of the stems were found infested in Traill, Pembina, and Grand Forks Counties. *Gymnocarena diffusa* (a tephritid fly) infested sunflower heads in Grand Forks County.

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